WHAT IS CLAIMED IS:

1. A controller for controlling an electromagnetic actuator having a pair of springs acting on opposite directions, an armature connected to the springs to be held in a neutral position given by the springs when the armature is not activated, and a pair of electromagnets for driving the armature between two end positions;

the controller configured to apply, in response to a release of the armature held in one of the end positions, brake to the armature according to a load condition of the armature.

2. The controller according to claim 1, wherein the application of brake includes applying, for a first period, voltage to the electromagnet corresponding to one of the end positions from which the armature is released.

3. The controller according to claim 2, wherein the first period is determined according to a load condition of the armature.

4. The controller according to claim 1, wherein the application of brake includes:

in response to a release of the armature, applying voltage to the electromagnet corresponding to one of the end positions from which the armature is released for a first period;

supplying flywheel current to the electromagnet for a second period after the first period elapses; and

suspending the power supply to the electromagnet after the second period elapses.

5. The controller according to claim 2, wherein the controller is

further configured to:

compare a displacement of the armature with a predetermined target displacement;

if the armature displacement is greater than the target displacement, extend the first period for applying the voltage; and

if the armature displacement is less than the target displacement, shorten the first period for applying the voltage.

6. The controller according to claim 1, wherein the armature is connected to a valve of an internal combustion engine.

7. The controller according to claim 6, wherein the valve of the internal combustion engine is an exhaust valve.

8. A program executable by a computer for controlling an electromagnetic actuator having a pair of springs acting on opposite directions, an armature connected to the springs to be held in a neutral position given by the springs when the armature is not activated, and a pair of electromagnets for driving the armature between two end positions, the program being structured to:

apply, in response to a release of the armature held in one of the end positions, brake to the armature according to a load condition of the armature.

9. The program according to claim 8, wherein the application of brake includes applying voltage, for a first period, to the electromagnet corresponding to one of the end positions from which the armature is released.

10. The program according to claim 9, wherein the first period is

determined according to a load condition of the armature.

11. The program according to claim 8, wherein the application of brake includes:

in response to a release of the armature, applying voltage to the electromagnet corresponding to one of the end positions from which the armature is released for a first period;

supplying flywheel current to the electromagnet for a second period after the first period elapses; and

suspending the power supply to the electromagnet after the second period elapses.

12. The program according to claim 9, wherein the program is further structured to:

compare a displacement of the armature with a predetermined target displacement;

if the armature displacement is greater than the target displacement, extend the first period for applying the voltage; and

if the armature displacement is less than the target displacement, shorten the first period for applying the voltage.

13. The program according to claim 8, wherein the armature is connected to a valve of an internal combustion engine.

14. The program according to claim 13, wherein the valve of the internal combustion engine is an exhaust valve.

15. A method for controlling an electromagnetic actuator having a pair of springs acting on opposite directions, an armature connected to the springs to be held in a neutral position given by the springs when the

armature is not activated, and a pair of electromagnets for driving the armature between two end positions, comprising:

applying, in response to a release of the armature held in one of the end positions, brake to the armature according to a load condition of the armature.

16. The method according to claim 15, wherein applying brake further includes applying voltage, for a first period, to the electromagnet corresponding to one of the end positions from which the armature is released.

17. The method according to claim 16, wherein the first period is determined according to a load condition of the armature.

18. The method according to claim 15, wherein applying brake further includes:

in response to a release of the armature, applying voltage to the electromagnet corresponding to the end position from which the armature is released for a first period;

supplying fly-wheel current to the electromagnet for a second period after the first period elapses; and

suspending the power supply to the electromagnet after the second period elapses.

19. The method according to claim 16, further comprising:

comparing a displacement of the armature with a predetermined target displacement;

if the armature displacement is greater than the target displacement, extending the first period for applying the voltage; and

if the armature displacement is less than the target displacement,

shortening the first period for applying the voltage.

20. The method according to claim 15, wherein the armature is connected to a valve of an internal combustion engine.